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VIRTUAL LEARNING ENVIRONMENT AND LEARNING STYLES

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ABSTRACT

Virtual Learning Environments are computer based Learning environment that offer online learning opportunities to learn. The paper overviews VLEs before proposing a new VLE, that is capable of determining the learning styles of students (visual, tactile, auditory). This helps the system in recommending study materials to each student.

Keywords: *Virtual learning environment (VLE), Learning styles (LS), Learning management systems (LMS)*

1. INTRODUCTION .

There has been an important trend to develop the intelligent tutoring system with suppling the learner with a more individuality and Intimate learning environment [1]. The ITSs will improve the performance if they could adopt the leaner (ATSs) are ITSS which are capable of adapting to the influence case of learner s [2]. The results discovered which student's situation toward touching computing, agent tutor expression, feeling, consciousness, realization, recognition, precision, has great in influence on learner's satisfaction [1,2].The distance learning has great popularity. There has been a great requirement to the smart educational completely adapted systems. These are used to teaching to detect Purpose of existing tutors and supply best estimate [3]. The Intelligent Learning System (ITS) is designed to adapt the education by researching main knowledge structures wanted to ITS. We have proposed intelligent network e systems which applied PHP programming to design an intelligent learning system for data logging and a mysterious way to evaluate user knowledge and optimization by getting quiz and posttest [1,3].

The research on Computer-based learning (CBL) is aimed at merging personal e-learning with an effective learning system (ATS) to can supported teaching and enhance the impactful of student learning. The strategy improves a novel (ATS) that contain four modules, affective recognition and tutor agent meaning directive strategies for testing the impact of (ATS) on usability qualitative data which study inducted 80 learners in traditional teaching group-40 from ATS. The research results appeared which avails of applying the (ATS) for remedial curriculum are best ease of use of system and high learning [4,5,6].We present in this study which display the intelligent behests system for university learners. The jointly with traditional functional ingredients, the suggested system contains the oracular model, evaluation of students' academic achievement. The output values of the model the commendation system may offer more convenient learning strategies and learning all materials and Subjects to students [7].

The primary purpose of intelligent tutoring systems (ITSs) should be attracting the students in continuous thinking. Interaction with the student depends on a deep understanding of students' behavior. The possibility of providing adaptive learning rules initially has a range of teaching strategies to choose from. The system should not be able to offer different learning strategies, but to choose wisely among them and decide the best for

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the individual student at a given moment. There is an need of tutoring systems that know the learning style of the student. This will help in recommending suitable study materials to students. This is expected to improve student grades when assessed in exams.

2. RELATED WORK.

2.1 E-learning

The primary objective is supplying the teacher with a developed tool to place private tutoring applications in a particular domain [2]. The teacher uses saved knowledge to select required contents which the system generated automatically exercises and workouts. These written tasks finished, estimated and executed in certain time, corresponding to the student's reality, Start mediating with the student to make the most of the session. Surveillance of the learning process is divide between the teacher and his system and students. The student can select the activities prefers executed, in a sub-group chosen by the teacher, the system decides the examinations complexity [6.7]. All The structures must be written by a teacher to create skills. They are finished by a simulator, under by an expert system that match students' needs [8, 9].E-materials and different e-learning systems seem steady features in secondary schools in Slovenia and around all the world [1]. Numerous various systems and materials were available for learners, but not all of them offer the same degree of exclusivity which is introduced in traditional teaching from teacher to student to show the design and assessment. The proposed systems are individual and intelligent tutoring system (ITS) rely on the individual learner's cognitive qualities. The model of tech8 display is typically planned and relies on a system to collect a set of metadata and dynamic variables for the teaching process. The proposed system supports individualization and differentiation. This tech8 system was estimated in a real learning environment. The estimation sample consists of 117 students from five schools. The collected data were analyzed and processed statistically through descriptive analysis. This collected was compared with one from national knowledge evaluation , which included all students in 2008, 2010 and 2013[5]. The research identified differences that properly generated e-learning materials. In addition, individual e-learning systems enhance this information got in education in traditional classrooms [10]. The student will receive multimedia learning tools and all the information that can be obtained online. The teacher will act as the leader of the student how to use these tools will to obtain required information. The learning environment appears in the M-learning environment is shown in Figure 1 [11].

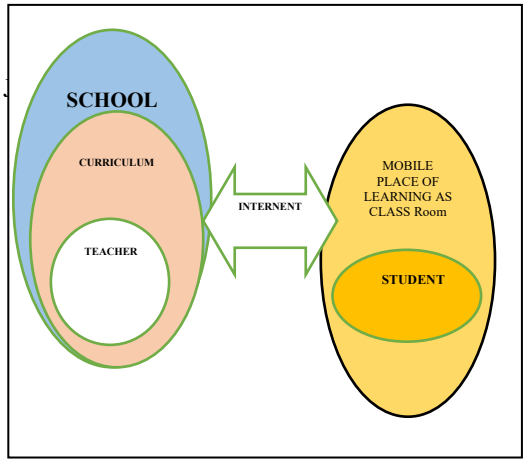

Figure 1: M-learning Environment Model [11].

The traditional approach of teachers to evaluate learner by number of tasks. The type of the question bank has an effect on the importance of evaluation in education. Varying of these questions helps in evaluating students efficiently [2,5].

2.1.2 The University of Hong Kong (HKU space)

Characterizes the design of smart tutor, an intelligent tutoring system executed for distance learning in Hong Kong [12]. Many of them emphasized the application of multimedia elements, however cannot push much notice on two crucial components: intelligent tutoring and personalization that are significant for life M long/adult education. The Hong Kong University (HKU) has improved smart tutor. The smart tutor is integrated into the comprehensive online learning universal (an online learning platform), that offer support for offered martial and courses by HKU space [13].

3. VIRTUAL LEARNING ENVIRONMENTS

VLEs can be think as software systems which facilitate learning processes collective, individual or personality and means applied electronic learning. They need the Internet and many administrative functions, for example, monitoring, management of educational materials, and rating of student learning [14]. So, a virtual environment can be known as a virtual space that has the ability to play a metaphor of the real world [15]. The system of VLE contains a web server to include [HTTP, FTP Server and the FTP task, FTP

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Connection Manager Editor a SQL Server].the Database administration and a short server programs group to supply all the multimedia, Teleconferencing functionality, reactive or interactive [14,15,16, 17,18,19,20]. The overall structure of our system is clear in Figure 2.

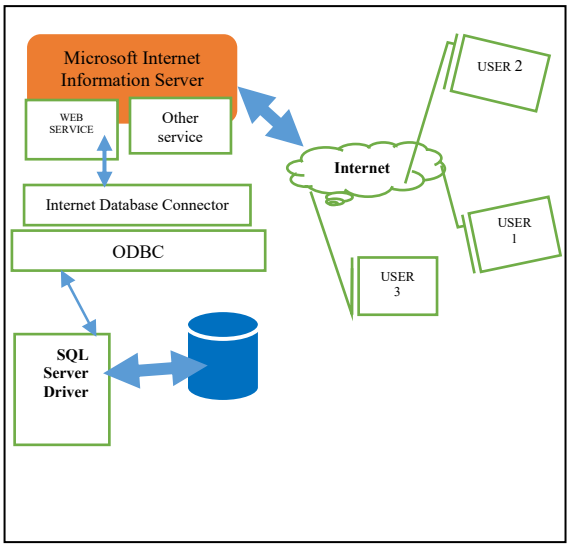

Figure 2:The architecture of VLE system architecture [20].

3.1 Change the administration to support and adopt VLEs .

The application of VLE in any academy of higher education requires good planning strategy for successful warranty. However, great e-learning strategies and systems are not enough to ensure success [21]. The VLE is not limited to outreach and communication with anyone, anywhere, at any time, but in its ability to provide the right knowledge to the right students at the right time [8]. A university that wishes to implement a VLE must successfully adopt and implement tactics that have the ability to overcome current social and cultural constraints. Getting a VLE application requires a well-designed program designed to enable easy execution and effective use [22].

3.2 resistance to change to adopt VLE in Universidad.

Many organizational changes are unsuccessful due to various resistance forms. Most people within an organization are probably against the accumulation of VLE. After that, it is important to understand why people may resist change [21]. People are the most important assets of any enterprise, and their commitment may be the key to determining the effective implementation of any project [22]. So the implementation team, identifying the underlying causes of the confrontation, can help them plan to address these issues to overcome resistance to change. In the literature, there are many reasons reported behind the confrontation to adopt the VLE's Academy of Higher Education, or other similar e-learning systems for example goolnik [23,24].

3.3 Teacher's plans and roles in designing virtual learning environments.

Many authors have argued that the views and expectations about linking technology and virtual learning environments differed greatly. When number of researchers think that VLEs are unable to provide effective learning processes [25,26] .These such wishes aim at improving learning and saving high flexibility in education . A lot of research has been done in virtual learning by many companies and educational institutions . Commercial software developers present that occasionally [27, 28,29,30, 31,32]. The teachers only follow a group of restricted rules and functionality [25,33,34].

3.4 VLE and e-learning system (ELS).

When learner begins to learning, personalized plan is designed by modeling agent depending on the learner and the curriculum. While the learning process, this plan is regulated by the modeling agent relies on the learning profile, that is created by the performance agent depend on the learning activities. Personalized content is changing dynamically created by the learner agent utilize the learning plan, syllabus and the curriculum model[35,36].The an Intelligent Agent-Supported Personalized Virtual Learning Environment is shown in Figure 3 [35].

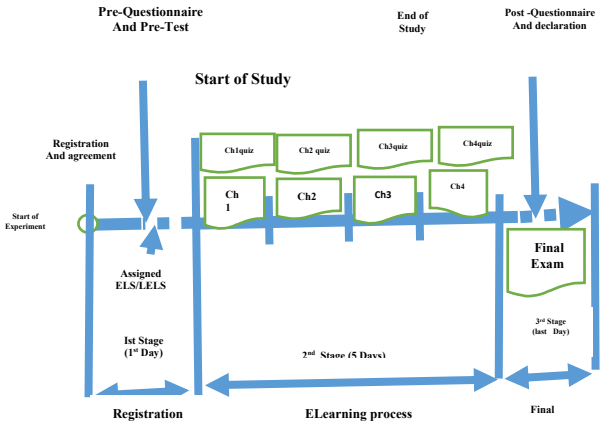

Figure 3. The Experimental Procedure in Intelligent Agent-Supported Personalized VLEs[35].

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The Conceptual model of constructivist VLEs clear in Figure. 4 is depend on INCENSE system [37].

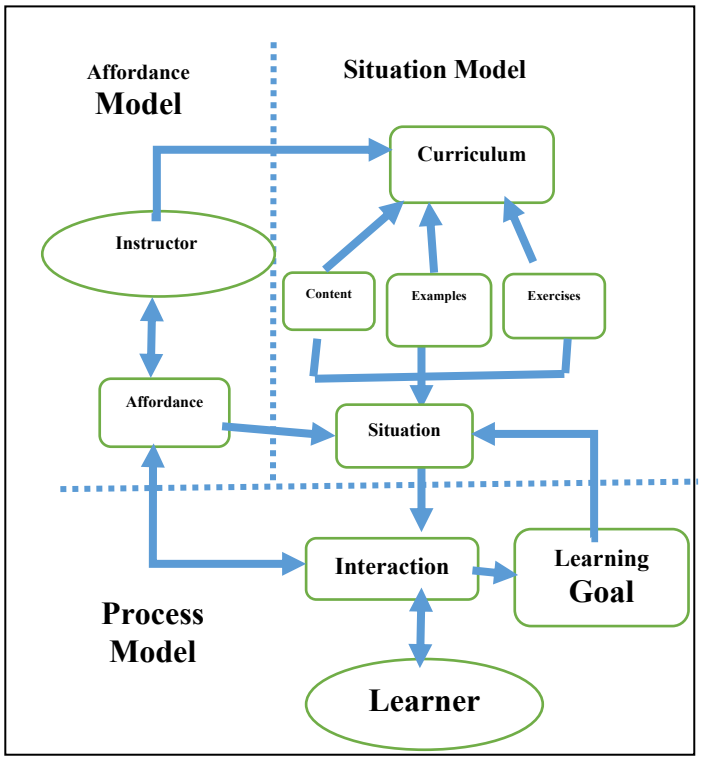

Figure 4 :the Conceptual model of constructivist Virtual Learning Environment[37].

3.5 Improve a problem-based learning model through a virtual learning environment.

A problem-based learning model Improved through a virtual learning environment (VLE) .It's good for university students in the illustration for communication martial course. The model Provides and increases students became it provides, increases students learning, accomplishment and problem-solving skills. The model test showed a group of criteria higher than the average in 80/83.93 agreeing to evaluate the search. The instructional systems design (ISD), concepts and the approaches system are involved into the design and hypothesis stages of model development [38,39] .The Problem-based Learning through Virtual Learning Environment model are clear in Figure 5 [38].

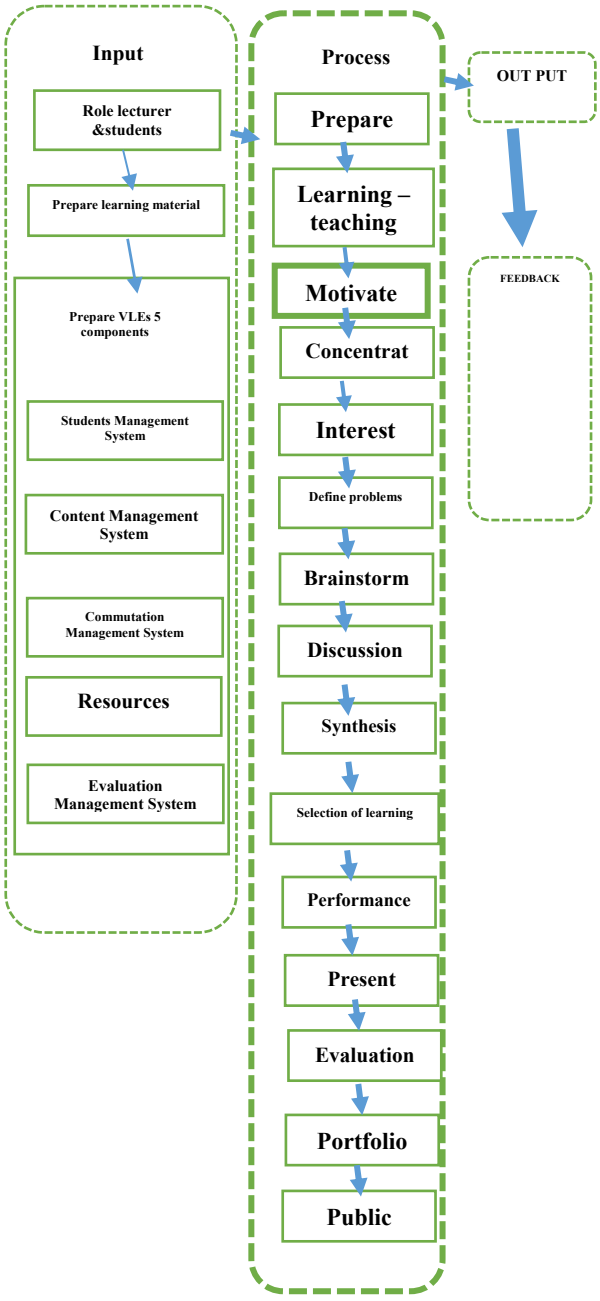

Figure 5 :Model of Problem-based learning in a VLE[38].

3.6 virtual learning environment and open source software.

Moodle's learning environment has become very popular with for the current learning
Environment [40]. Not only academies of higher education, but also small academies

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Accreditation to facilitate their students. One example of open source software is Moodle (modular object-oriented dynamic learning environment).The software depends the requirements particularly with benefit a distance learning mode in academy, tested it by loading information /data including degree, students profile, exam, tasks ,services [40,41].

3.7 The integration of virtual learning environments and content-based instruction.

The objective of the online platforms is to supply students and teacher with resources information, to ease, to manage and arrange learning [42].recently platform planners added more facilities to keep the online materials effective useful. On line platforms make learning enjoyable and reduce impact on the learner. Learning can be helped through growing encouragement and interconnection via the learning task in these collaborative virtual environments (CVEs). This strong interaction that integrate multimodal motivation and gamification of the learning test, exam, quiz, trial have the prospective to put students into the learning task and batter learning outcomes [43].

3.8 predicting virtual learning environment adoption

The Converge is on unlike adoption types and characteristics of users. Rogers' doi theory is used to check the impact of five foretells (trainability, complexity, relative advantage, compatibility and observability) and their indication in the imagination of academic staff at the rub in relation to the prospect of VLE adoption. These foretells are attributes of the VLE that limit the average of adoption by various adopter group memberships (late majority, early majority, laggards, innovators, and early adopters[42,43].

4. THE PROPOSED VLE SYSTEM

This system depends on multiple-instruction Virtual Learning Environment (VLE). The used mothed in this system helped students to study the lectures online in an attractive and interesting way. It also supported interaction between students and teacher. It presented the martial through video, text and audio martial. Students are divided in to three groups for learning according to the suitable kind of learning for every students. (http://www.gate-learning.com/new_gate/).

4.1 Design Model

The design of VLE model is online learning that aims at supplying communication infrastructure students, position, attitude, stand, stance and situation. Students can choose suitable style of learning besides favorite learning activities. The learning activities include [test, exam, experience, quiz, trial, lecture notes, lecture video, sound, text archive, simulation program, inquiries, testing. Relying on component and display learning activities as clear in Figure 6.

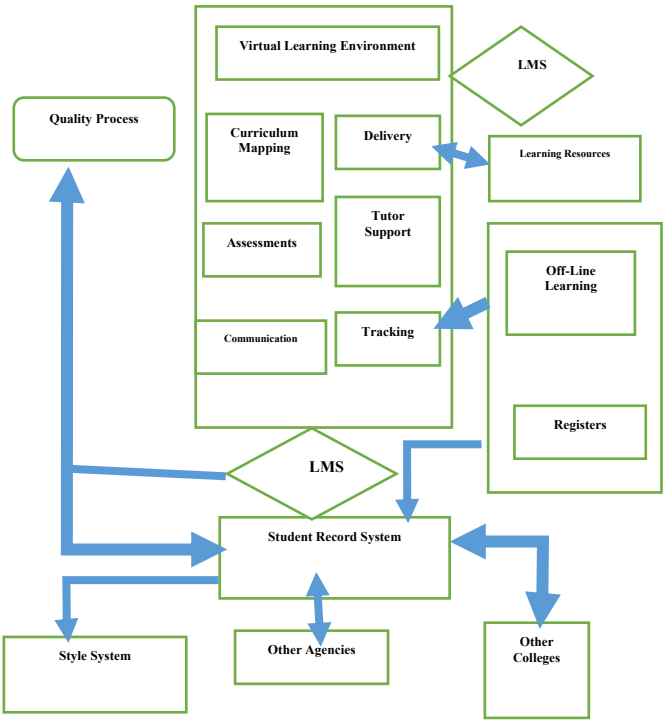

Figure 6: MLE and VLE sub-system[44].

4.1 proposed system and algorithms

Students learn how to use system encourage self-consciousness and make it can choose the subject of their Curriculum endearing styles by VLE they have found an Assess the quality of their more knowledge of information technology. The system and algorithms virtual learning environment show in figure 7:

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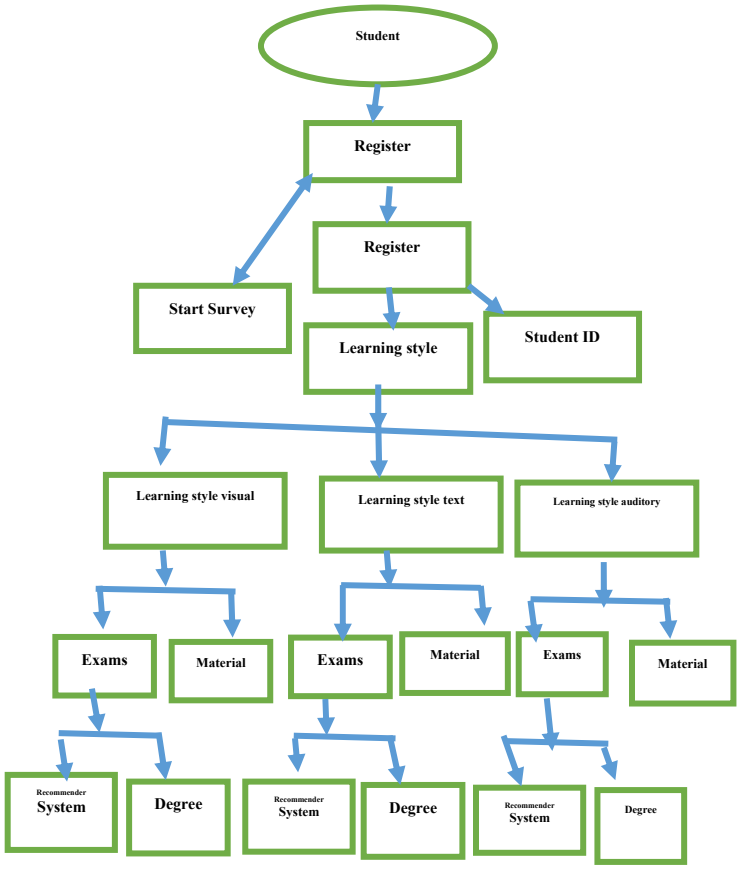

Figure 7: system and algorithms virtual learning environment.

4.2 Structure and concept of the VLE

The structure and concept of VLE applied Module design or the specific content and Creating Better VLE Courses. The student can choose one of five [lecture, IOT video,Study martial, exams or Exercises, profile] in display Figure 8.

Figure 8. Structure of VLE.

The recognize that structured coordination is like the content of a customary scheme outline of martial will be helping the students to easily his/her interesting subjects (see Figure 9).Multimedia, Interactive Electronic martial.

Figure 9: Electronic martial

The student can use various mothed to learning style. The applied technology-based environments and use of computers and the Internet. These ways to learning style online in environments (see Figure 10).

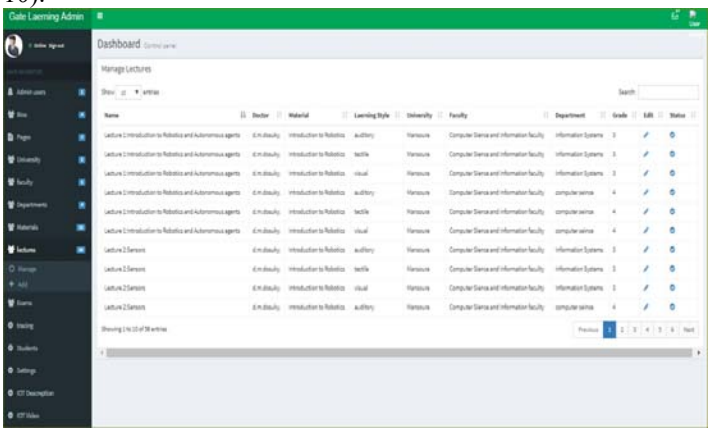

Figure 10: different ways to learn.

All the students choose Course materials (video, audio, text) and quizzes are provided to realize the purpose of this study. Multiple and short choice questions is created based on activity students shown in Figure 11. Interactive Quiz and Self-Assessment.

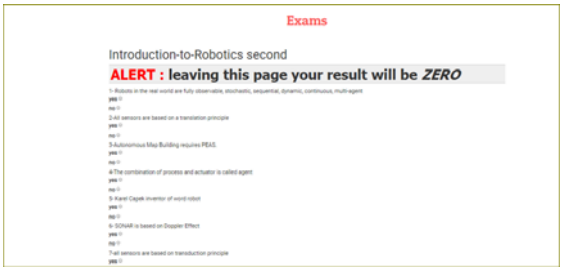

Figure 11: Interactive Quiz.

The students can find Quizzes On-line created on the Server automatically. When student end the quizzes, he gets the results (see Figure 12). Finally the students check his answer. The student will review the solution.The system gives recommendations before each question (see Figure 12).

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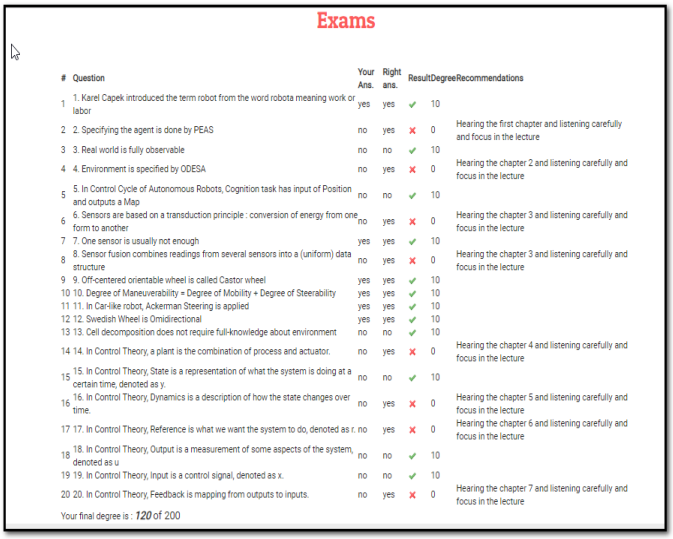

Figure 12: Displays the result exam.

4.3 Intercourse online learning and learning styles.

Research helps to increase the online learning environment based on fundamentally different learning styles. Research focuses on is on to things; online learning environment and learning styles. The system is given a message to the student that it has been recorded. The solution to these questions is to define the learning style (text-video-audio) .The student must solve all questions so that the system can determine the type learning style and then send the answers to the system (see Figure 13).

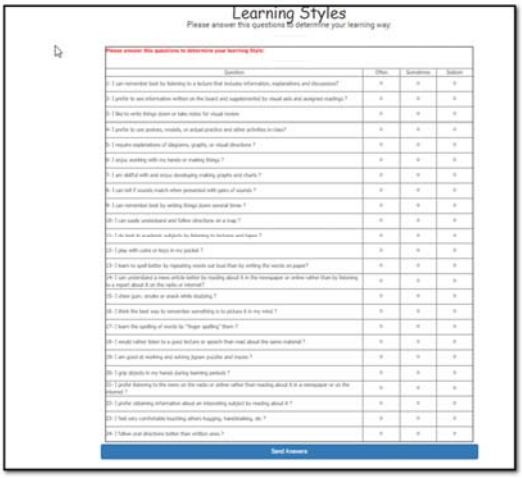

Figure 13: learning style survey.

Individual differences are essential in the design of the learning environment. Research associated with both online learning and learning methods (see Figure 14).

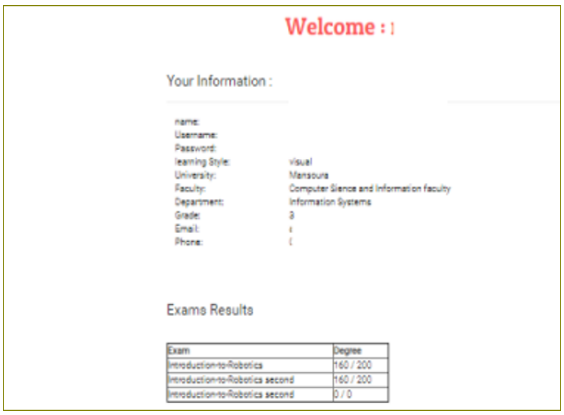

Figure 14: intercourse online learning and learning styles.

4.4 The experience of VLE implementation in different universities .

The experience of VLE implementation of a strategy on e-learning and encourage the development of effective usage of VLEs. (See Figure 15).

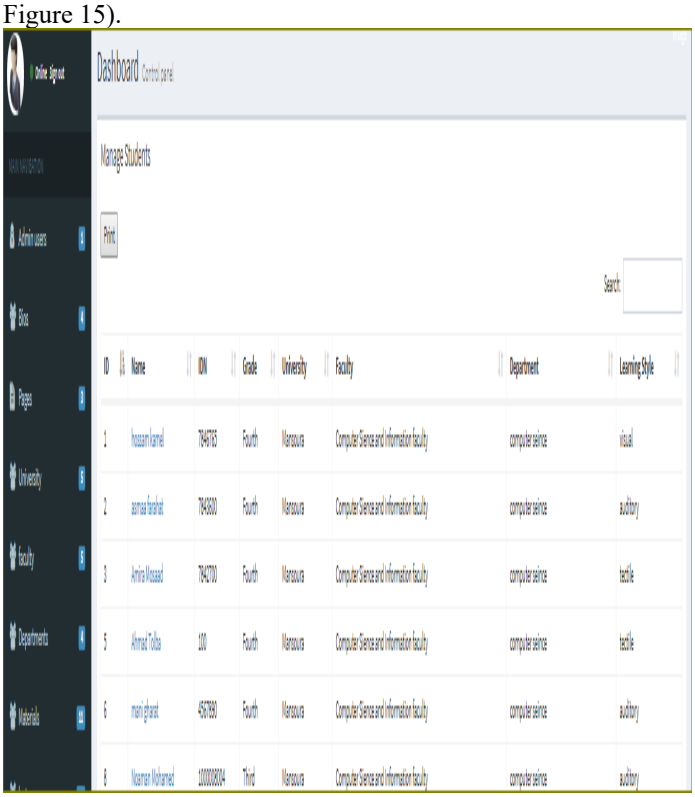

Figure 15: VLE implementation in different universities.

4.5 Algorithm design

The algorithm that builds and manages the proposed form virtual learning environment is shown in figure 16.

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Leaning Style
Input: Questions Answers to determine leaning style
Output: Learning style: Visual-auditory -tactile
Step 1: The student Register
Step 2: The system sent massage "you will be redirected to Survey You must answer"
Step3: the system sent massage leaning Styles "Please answer these questions to determine your learning way"
Step4: The student answer this questions to determine leaning way
Step 5: case l: Visual
If degree of sum of visual> sum degree of text > sum degree of audio
Message your learning style is visual
Style of student is visual
Step 6: case 2: tactile
If degree of sum of tactile > degree of audio> sum of visual
Message your learning style is tactile
Style of student is tactile
Step 7: case 3: Auditory
If degree of sum of Auditory >sum degree of visual >sum degree of tactile
Message-your leaning style is , Auditory
Style of student is Auditory

Figure 16: Algorithm learning style of student.

4.6 EXPIREMENTAL RESULTS

A learning system was established to determine the appropriate learning style for each student. Questions were placed within the system to determine the appropriate learning style for each student.

4.6.1 The system divide.

The system divided the students into three groups (tactile - auditory- visual) based on the student's solution of the questions posed by the system.
The following figure 17 shows the distribution of the system for all students.

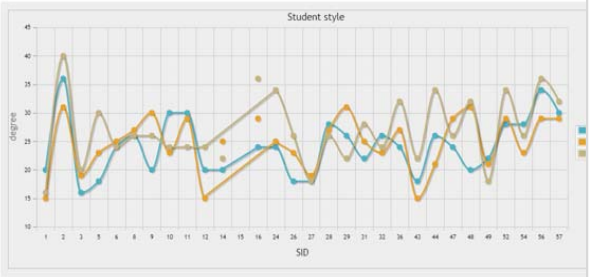

Figure 17: Distribution of the system for all students.

4.6.2 The system downloads materials and learning style.

The student can obtain the scientific material from the system. The system downloads questions for all students according to learning style. The student will solve the specific questions for each lecture. After the student finishes the test, the system will give the student a grade.

4.6.3 The system download to the student style tactile test 1.

The system download to the student style tactile test I.The student will solve the specific questions for each lecture. The system will give the student a grade. Figure 18: shows students' grades tactile.

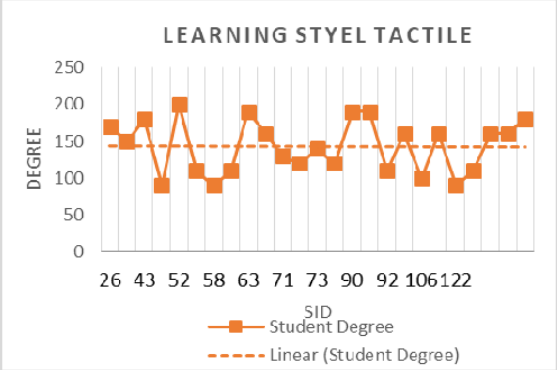

Figure 18: students' grades tactile test 1.

4.6.4 The system recommendations student tactile style.

The system sent recommendation to students of lover grade level in the test to improve the educational level of these student. Student's grades improved as a result of students recommendations tactile. The figure 19 shows the success of the system improvement in the level of student's tactile.

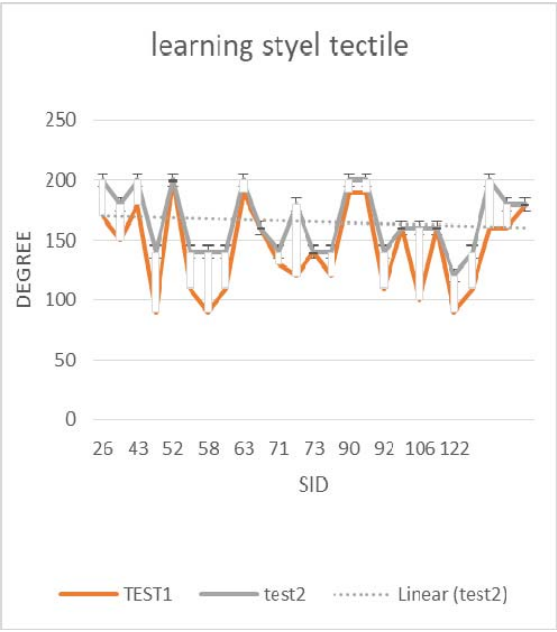

Figure 19: the system improvement in the level of students.

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Figure 20: show Ratio of students' tactile improvement by system.

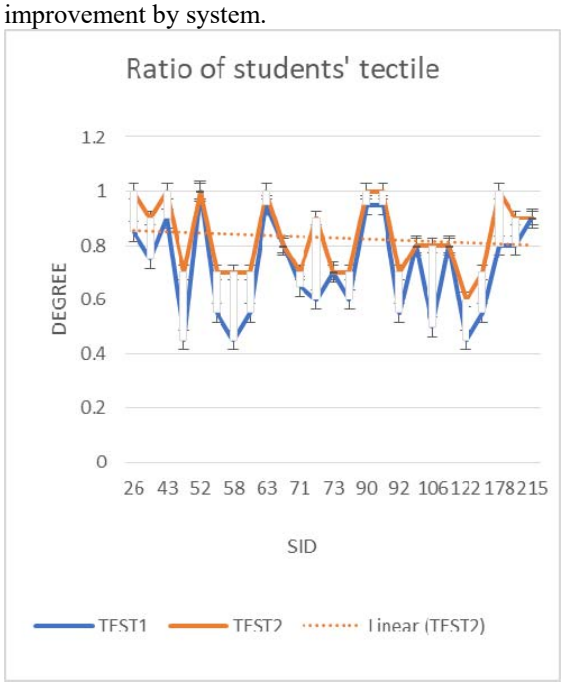

Figure 20: Ratio of students' tactile improvement by system.

4.6.5 The system downloads to the student style visual test 1.

The system downloads to the student style visual test I.The student will solve the specific questions for each lecture. The system will give the student a grade**.** Figure: 21 shows students' grades visual.

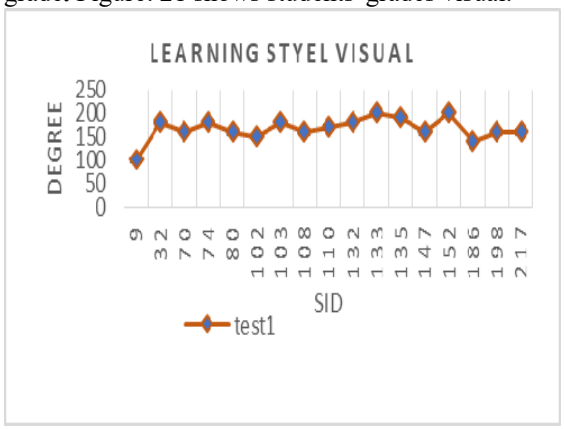

Figure 21: shows students' grades visual test 1.

4.6.6 The system recommendations student visual style.

The system sent recommendation to students of lover grade level in the test to improve the educational level of these student.Student's grades improved as a result of student's recommendations visual.

The figure 22: shows the success of the system improvement in the level of student's visual.

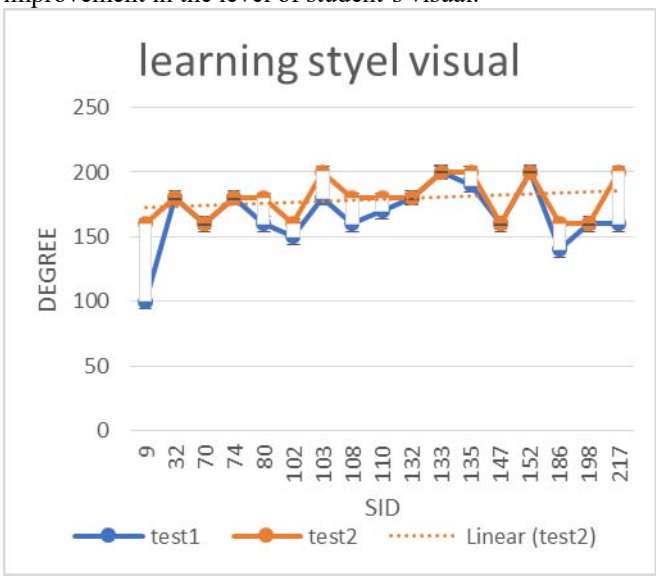

Figure 22: the system improvement in the level of students visual.

Figure 23: show Ratio of students' visual improvement by system.

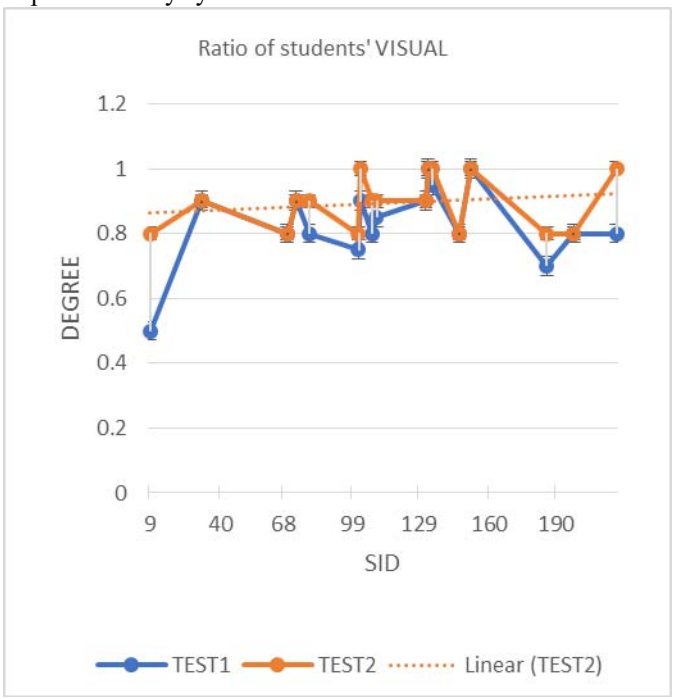

Figure 23: Ratio of student's visual improvement by system.

4.6.7 The system download to the student style auditory test 1.

The student will solve the specific questions for each lecture. The system will give the student a grade. Figure 24 shows students' grades.

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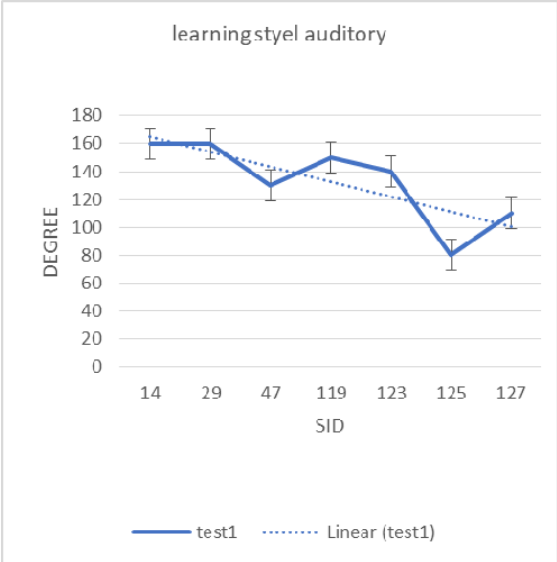

Figure 24: students' grades auditory test 1.

The system sent recommendation to students of lover grade level in the test to improve the educational level of these student. Student's grades improved as a result of students recommendations tactile. The figure 25 shows the success of the system improvement in the level of student's auditory.

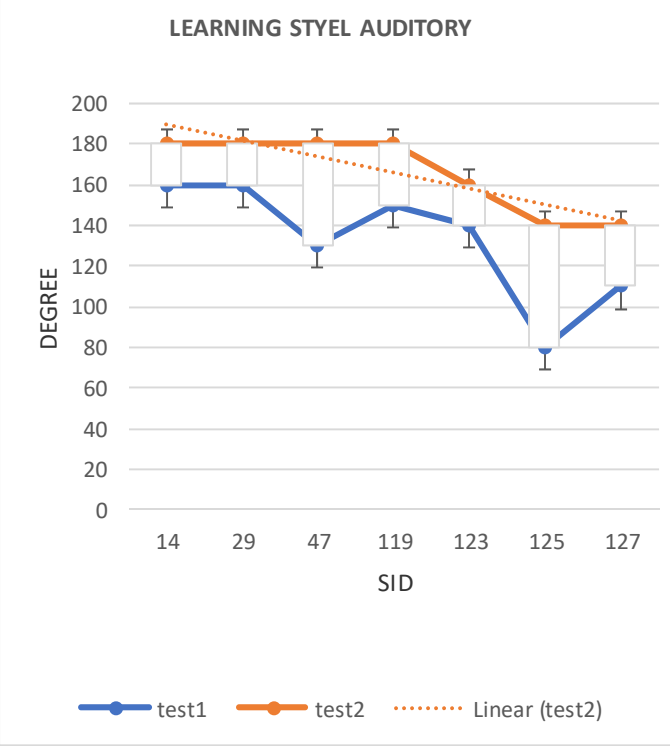

Figure 25: the system improvement in the level of student's auditory.

Figure 26: show Ratio of students' auditory improvement by system.

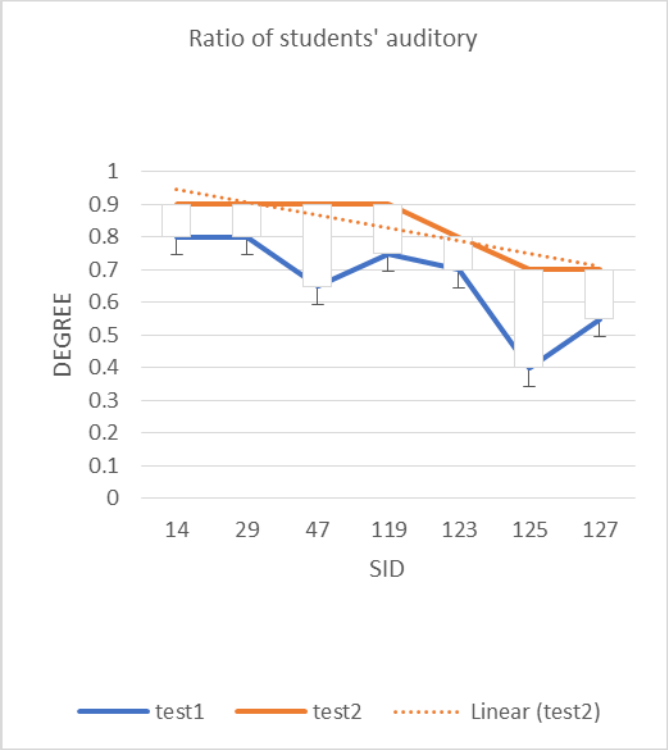

Figure 26: Ratio of students' auditory improvement by system.

4.7 DISCUSSION

The proposed VLE architecture is similar to the architecture proposed in [20]. However, proposed system is built using open source solutions such as apache and PHP, while architecture in [20] is built using Microsoft solutions. This difference may reflect in trancarency and performance.

Results of the proposed VLE agree to the results of [21]. However, Ref. [21] discussed why people may resist change in adopting VLLs.

Ref. [22] presented a solution to incorporate learning styles as an interface to Moodle. However the proposed solution is built from scratch.

Finally, findings agree with a study conducted on Slovenian universities[23].

5. CONCLUSION

VLEs are software systems that facilitates e-learning. The paper in hand proposes a VLE that takes into consideration the students' learning style. Learning style can be visual, tactile, or auditory. Based on knowing the learning style, the VLE can recommend suitable study materials to each student. Based on student evaluation, there are

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improvement in students' grades when learning styles are considered.

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